

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 3 of 36

Amendments to the Claims

This listing of claims will replace all prior versions, and listing, of claims in the application.

Listing of Claims:

1. (Previously Presented) A display device driving circuit comprising:

a scanning signal line driving section for outputting display scanning signals respectively to scanning signal lines for displaying an image according to the display data with respect to pixels which are disposed in a matrix;

a control section including a set section in which is set each of an image display area and one or more non-image areas, each of the one or more non-image areas comprising a plurality or more of adjacent scanning signal lines, and wherein said control section is configured and arranged to determine from inputs thereto if the image data to be outputted corresponds to any of the one or more non-image areas and so as to output a transition instruction signal for each of the one or more non-image areas when it is so determined, and

wherein said : scanning signal line driving section includes a control means for controlling scanning line signal outputs from said scanning signal line driving section,

said control means being configured and arranged to switch the output of the display scanning signals to the respective scanning signal lines from the scanning signal line driving section, based on the transition instruction signal from said control section, so as to cause a transition from successive output of display scanning signals to simultaneous output of display scanning signals, and to control the output of the display scanning signals from the scanning

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 4 of 36

signal line driving section to the respective scanning signal lines based on the received transition instruction signal, so that the display scanning signals are outputted simultaneously with respect to all of the plurality or more scanning signal lines of each of the one or more non-image areas until receipt of an instructional signal of a start of a next successive output for successively outputting the display scanning signals.

2. (Original) The display device driving circuit as set forth in claim 1, wherein said scanning signal line driving section includes a plurality of serially connected shift register sections for outputting the display scanning signals with respect to the respective scanning signal lines.

3. (Previously Presented) The display device driving circuit as set forth in claim 1, comprising deactivating means for deactivating an operation of the scanning signal line driving section based on a synchronize signal and the transition instruction signal for displaying the image, where in the deactivated condition at least a portion of said scanning signal line driving section is functionally deactivated.

4. (Previously Presented) The display device driving circuit as set forth in claim 1, wherein said control means includes an unscanned area recognizing section for recognizing an unscanned area based on the transition instruction signal, and wherein said control means

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 5 of 36

controls the output of the display scanning signals from the scanning signal line driving section to the respective scanning signal lines so that the display scanning signals are outputted only to the plurality or more of scanning signal lines which correspond to the unscanned area as recognized by the unscanned area recognizing section.

5. (Previously Presented) The display device driving circuit as set forth in claim 2, wherein said scanning signal line driving section has a plurality of scanning starting positions which are set in a vertical direction, and successively outputs, among the plurality of scanning starting positions, the display scanning signals to scanning signal lines which correspond to one of the one or more non-image areas, which is an area from a scanning starting position therein in the vicinity of a front portion of the image display area to the image display area, and to scanning signal lines which correspond to the image display area, and thereafter simultaneously outputs the display scanning signals to the plurality or more of scanning signal lines which correspond to an unscanned area based on the transition instruction signal.

6. (Previously Presented) The display device driving circuit as set forth in claim 5, wherein said scanning signal line driving section deactivates an operation of a display device, after simultaneously outputting the display scanning signals only to the plurality or more of scanning signal lines which correspond to the unscanned area and until next successive output is

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 6 of 36

carried out, where in the deactivated condition at least a portion of said scanning signal line driving section is functionally deactivated.

7. (Previously Presented) The display device driving circuit as set forth in claim 1, wherein said control means controls the scanning signal line driving section based on the transition instruction signal so that the display scanning signals are simultaneously outputted within one horizontal period to the plurality or more of scanning signal lines of the one or more non-image areas.

8. (Previously Presented) The display device driving circuit as set forth in claim 1, wherein said control means controls the scanning signal line driving section based on the transition instruction signal so that the display scanning signals are simultaneously outputted within two horizontal periods to the plurality or more of scanning signal lines of the one or more non-image areas.

9. (Previously Presented) A display device driving circuit comprising:
a scanning signal line driving section for outputting display scanning signals respectively to scanning signal lines for displaying an image according to the display data with respect to pixels which are disposed in a matrix;

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 7 of 36

a control section including a set section in which is set each of an image display area and one or more non-image areas, each of the one or more non-image areas comprising a plurality or more of scanning lines and wherein said control section is configured and arranged to determine from inputs thereto if the image data to be outputted corresponds to any of the one or more non-image areas and so as to output a transition instruction signal for each of the one or more non-image areas when it is so determined; and

wherein said scanning signal line driving section includes:

input means for receiving the transition instruction signal from said control section, the transition instruction signal for causing a transition from successive output to simultaneous output with respect to the output of the display scanning signals to the respective plurality or more of scanning signal lines of each of the one or more non-image areas; and

control means for switching the output of the display scanning signals from the scanning signal line driving section to the respective scanning signal lines based on the received transition instruction signal, so as to cause a transition from successive output of display scanning signals to simultaneous output of display scanning signals, and for controlling the scanning signal line driving section based on the received transition instruction signal so that the display scanning signals are outputted simultaneously with respect to all of the plurality or more of scanning signal lines of each of the one or more non-image areas until receipt of an instructional signal of a start of a next successive output for successively outputting the display scanning signals.

Applicant: Y. Karnezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 8 of 36

10. (Original) The display device driving circuit as set forth in claim 9, wherein said scanning signal line driving section includes a plurality of serially connected shift register sections for outputting the display scanning signals with respect to the respective scanning signal lines.

11. (Previously Presented) The display device driving circuit as set forth in claim 9, wherein said control means includes deactivating means for deactivating an operation of the scanning signal line driving section based on a synchronize signal and the transition instruction signal for displaying the image, where in the deactivated condition at least a portion of said scanning signal line driving section is functionally deactivated.

12. (Previously Presented) The display device driving circuit as set forth in claim 9, wherein said control means includes an unscanned area recognizing section for recognizing an unscanned area based on the transition instruction signal, and wherein said control means controls the output of the display scanning signals from the scanning signal line driving section to the respective scanning signal lines so that the display scanning signals are outputted only to the plurality or more of scanning signal lines which correspond to the unscanned area as recognized by the unscanned area recognizing section.

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 9 of 36

13. (Previously Presented) The display device driving circuit as set forth in claim 10, wherein said scanning signal line driving section has a plurality of scanning starting positions which are set in a vertical direction, and successively outputs, among the plurality of scanning starting positions, the display scanning signals to scanning signal lines which correspond to one of the one or more non-image areas, which is an area from a scanning starting position therein in the vicinity of a front portion of the image display area to the image display area, and to scanning signal lines which correspond to the image display area, and thereafter simultaneously outputs the display scanning signals to the plurality or more of scanning signal lines which correspond to an unscanned area based on the transition instruction signal.

14. (Previously Presented) The display device driving circuit as set forth in claim 13, wherein said scanning signal line driving section deactivates an operation of a display device, after simultaneously outputting the display scanning signals only to the plurality or more of scanning signal lines which correspond to the unscanned area and until next successive output is carried out, wherein in the deactivated condition at least a portion of said scanning signal line driving section is functionally deactivated.

15. (Previously Presented) The display device driving circuit as set forth in claim 9, wherein said control means controls the scanning signal line driving section based on the transition instruction signal so that the display scanning signals are simultaneously outputted

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 10 of 36

within one horizontal period to the plurality or more of scanning signal lines of the one or more non-image areas.

16. (Previously Presented) The display device driving circuit as set forth in claim 9, wherein said control means controls the scanning signal line driving section based on the transition instruction signal so that the display scanning signals are simultaneously outputted within two horizontal periods to the plurality or more of scanning signal lines of the one or more non-image areas.

17. (Previously Presented) A driving method of a display device which outputs display scanning signals respectively to scanning signal lines, and outputs display data signals respectively to data signal lines, so as to display an image which is in accordance with the display data with respect to pixels which are disposed in a matrix, and has a partial display function for one or more non-image areas comprising a plurality or more of scanning signal lines and an image display area, said driving method comprising the step of:

outputting a transitional instructional signal for each of the one or more non-image areas when it is determined that the image data to be outputted is that for any of the one or more non-image areas and not outputting the transitional instructional signal when it is determined that the image data to be outputted is that for the image display area; and

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 11 of 36

simultaneously outputting the display scanning signals with respect to the plurality of scanning signal lines of each of the one or more non-image areas based on the outputted transition instruction signal so as to cause a transition from successive output of display scanning signals to simultaneous output of display scanning signals, so that the display scanning signals are outputted simultaneously with respect to all of the plurality or more of scanning signal lines for the one or more non-image areas until receipt of an instructional signal of a start of a next successive output for successively outputting the display scanning signals.

18. (Previously Presented) The method as set forth in claim 17, further comprising the step of deactivating the display device so that the driving device is not capable of fully performing normal operational functions, wherein said deactivating includes deactivating the display device after simultaneously outputting the display scanning signals only to the plurality or more of scanning signal lines which correspond to the unscanned area based on the transition instruction signal and until next successive output is carried out.

19. (Previously Presented) The method as set forth in claim 17, wherein, among a plurality of scanning starting positions which are set in a vertical direction, the display scanning signals are successively outputted to scanning signal lines which correspond to one of the one or more non-image areas, which is an area from a scanning starting position therein in the vicinity of a front portion of the image display area to the image display area, and to scanning signal lines

Applicant: Y. Kamczaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 12 of 36

which correspond to the image display area, and thereafter the display scanning signals are simultaneously outputted to a plurality or more of scanning signal lines which correspond to an unscanned area based on the transition instruction signal.

20. (Previously Presented) The method as set forth in claim 17, wherein the display scanning signals are simultaneously outputted based on the transition instruction signal to each of a first line group and a second line group of the plurality or more of scanning signal lines which correspond to an unscanned area.

21. (Previously Presented) The method as set forth in claim 17, further comprising the steps of:

outputting display scanning signals when successively outputting display scanning signals at one frequency, and

outputting display scanning signals when simultaneously outputting display scanning signals at another frequency, where the another frequency is different from said one frequency.

22. (Previously Presented) The method as set forth in claim 17, wherein said simultaneously outputting includes simultaneously outputting display scanning signals according to the one or more non-image areas within one horizontal period with respect to the plurality or more of scanning signal lines which correspond to the one or more non-image areas.

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 13 of 36

23. (Previously Presented) The method as set forth in claim 17, wherein simultaneously scanning includes simultaneously scanning display scanning signals according to the one or more non-image areas within two horizontal periods with respect to the plurality or more of scanning signal lines which correspond to the one or more non-image areas.

24. (Currently Amended) A driving method of a display device which outputs display scanning signals respectively to scanning signal lines, and outputs display data signals respectively to data signal lines, so as to display an image which is in accordance with the display data with respect to pixels which are disposed in a matrix, and has a partial display function for a non-image area comprising a plurality or more of scanning lines and an image display area,

said method comprising the steps of:

distinguishing a predetermined image display area and a predetermined non-image area from each other;

simultaneously outputting the display scanning signals and the display data signals respectively to the respective plurality or more of scanning signal lines of the non-image area and the respective data signal lines which correspond to the non-image area responsive to said distinguishing; and

following said simultaneously outputting, deactivating operation of the scanning signal line driving section until next display is carried out, where in the deactivated condition at least a

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 14 of 36

portion of the scanning signal line driving section is ~~functionally deactivated shutdown/turned off such that the portion is not consuming power and so the scanning signal line driving section is thereby incapable of providing output signals until the driving section is turned on when the next display is carried out.~~

25. (Previously Presented) The method as set forth in claim 24, wherein said simultaneously outputting includes simultaneously outputting display scanning signals according to the non-image area within one horizontal period with respect to the plurality or more of scanning signal lines which correspond to the non-image area.

26. (Previously Presented) The method as set forth in claim 24, wherein said simultaneously outputting includes simultaneously outputting display scanning signals according to the non-image area within two horizontal periods with respect to the plurality or more scanning signal lines which correspond to the non-image area.

27. (Previously Presented) An image display device comprising:
a scanning signal line driving section for outputting display scanning signals respectively to scanning signal lines,
a data signal line driving section for outputting display data signals respectively to data signal lines, so as to display an image according to the display data with respect to pixels which

Applicant: Y. Kamezaki, et al.
U.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 15 of 36

are disposed in a matrix, said pixels having a partial display function for an image display area including a plurality or more of scanning signal lines and a non-image area,

means for distinguishing the image display area and the non-image area from each other and for outputting a transition instructional signal for the non-image area responsive to said distinguishing; and

scanning signal line control means for switching the output of the display scanning signals to the respective scanning signal lines from the scanning signal driving section, based on the outputted transition instruction signal so as to cause a transition from successive output of display scanning signals to simultaneous output of display scanning signals, and for controlling the output of the display scanning signals from the scanning signal line driving section to the respective scanning signal lines based on the outputted transition instruction signal, so that the display scanning signals are outputted simultaneously with respect to all of the plurality or more scanning signal lines for the non-image area until receipt of an instructional signal of a start of a next successive output for successively outputting the display scanning signals.

28. (Previously Presented) The image display device as set forth in claim 27, wherein said scanning signal line driving section includes a plurality of serially connected shift register sections for outputting the display scanning signals to the respective scanning signal lines and includes a plurality of scanning starting positions which are set in a vertical direction, said scanning signal line driving section successively outputting, among the plurality of scanning

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 16 of 36

starting positions, the display scanning signals to scanning signal lines which correspond to the non-image area, which is an area from a scanning starting position therein in the vicinity of a front portion of the image display area to the image display area, and to scanning signal lines which correspond to the image display area, and thereafter simultaneously outputting, based on the outputted transition instruction signal, the display scanning signals to the plurality or more of scanning signal lines which correspond to an unscanned area.

29. (Currently Amended) The image display device as set forth in claim 27, wherein said scanning signal line control means controls the output of the display scanning signals from the scanning signal line driving section to the respective scanning signal lines so that an operation of the image display device is deactivated after simultaneously outputting the display scanning signals only to the plurality or more scanning signal lines which correspond to the unscanned area based on the outputted transition instruction signal and until next successive output is carried out, where in the deactivated condition at least a portion of said scanning signal line driving section is functionally deactivated.

30. (Previously Presented) The image display device as set forth in claim 27, wherein said scanning signal line control means controls the output of the display scanning signals from the scanning signal line driving section to the respective scanning signal lines based on the outputted transition instruction signal so that the display scanning signals are simultaneously

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 17 of 36

outputted to each of a first line group and a second line group of the plurality or more of scanning signal lines which correspond to an unscanned area.

31. (Previously Presented) The image display device as set forth in claim 27, wherein said scanning signal line control means controls the scanning signal line driving section based on the outputted transition instruction signal so that the display scanning signals are outputted simultaneously within one horizontal period with respect to the plurality or more of scanning signal lines of the non-image area.

32. (Previously Presented) The image display device as set forth in claim 27, wherein said scanning signal line control means controls the scanning signal line driving section based on the outputted transition instruction signal so that the display scanning signals are outputted simultaneously within two horizontal periods with respect to the plurality or more of scanning signal lines of the non-image area.

33. (Previously Presented) An image display device comprising:
a scanning signal line driving section for outputting display scanning signals respectively to scanning signal lines,
a data signal line driving section for outputting display data signals respectively to data signal lines,

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 18 of 36

a set section for setting an image display area according to the display data and a non-image area with respect to pixels, so as to display an image according to the display data with respect to the pixels which are disposed in a matrix and for outputting a transition instruction signal when the display scanning signals to be outputted are for the non-image area,

scanning signal line control means for controlling the scanning signal line driving section, the scanning signal line control means being configured and arranged so that the display scanning signals are simultaneously outputted with respect to the plurality or more of scanning signal lines which correspond to the non-image area as set by the set section responsive to the outputted transition instruction signal,

the scanning signal line driving section including a plurality of serially connected shift register sections for outputting the display scanning signals respectively to the scanning signal lines,

the scanning signal line control means individually and simultaneously scanning the shift register sections in the non-image area, and

wherein to the serially connected shift registers, respective start pulse signals are supplied and being signaled by the start pulse signals, scanning of the scanning signal lines is started.

34. (Original) The image display device as set forth in claim 33, comprising data signal line control means for controlling the data signal line driving section so as to output the display

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 19 of 36

data signals for the non-image area to the respective data signal lines when the display scanning signals are simultaneously outputted.

35. (Previously Presented) The image display device as set forth in claim 33, comprising first deactivating means for deactivating an operation of the data signal line driving section after the simultaneous output and until next successive output with respect to a horizontal period based on the display data, where in the deactivated condition at least a portion of the data signal line driving section is functionally deactivated.

36. (Previously Presented) The image display device as set forth in claim 33, comprising second deactivating means for deactivating an operation of the scanning signal line driving section after the simultaneous output and until next successive output with respect to a horizontal period based on the display data, where in the deactivated condition at least a portion of the scanning signal line driving section is functionally deactivated.

37. (Previously Presented) The image display device as set forth in claim 33, further comprising a first clock generating means for generating a first clock signal for displaying the image display area and a second clock generating means for generating a second clock signal for displaying the non-image area, wherein the first and second clock signals being generated are different from each other.

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 20 of 36

38. (Previously Presented) The image display device as set forth in claim 33, wherein said scanning signal line control means controls the scanning signal line driving section based on the outputted transition instruction signal so that the display scanning signals are outputted simultaneously within one horizontal period with respect to the plurality or more scanning signal lines of the non-image area.

39. (Previously Presented) The image display device as set forth in claim 33, wherein said scanning signal line control means controls the scanning signal line driving section based on the outputted transition instruction signal so that the display scanning signals are outputted simultaneously within two horizontal periods with respect to the plurality or more of scanning signal lines of the non-image area.

40. (Previously Presented) The method as set forth in claim 17, wherein the display scanning signals are outputted based on the outputted transition instruction signal simultaneously to an odd-numbered line group of the plurality or more of scanning signal lines that correspond to an unscanned area and simultaneously to an even-numbered line group of the plurality or more of scanning signal lines that correspond to the unscanned area.

41. (Previously Presented) The method as set forth in claim 17, wherein the display scanning signals are outputted based on the outputted transition instruction signal simultaneously

Applicant: Y. Kamczaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 21 of 36

to odd-numbered pairs of adjacent ones of the plurality or more of scanning signal lines that correspond to an unscanned area and simultaneously to even-numbered pairs of adjacent ones of the plurality or more of scanning signal lines that correspond to the unscanned area.

42. (Previously Presented) A display device driving circuit which includes a scanning signal line driving section for outputting display scanning signals respectively to scanning signal lines for displaying an image according to the display data with respect to pixels which are disposed in a matrix, said display device driving circuit comprising:

means for distinguishing an image display area and a non-image area from each other and for outputting a transition instructional signal for the non-image area;

deactivating means for deactivating operation of the scanning signal line driving section based on a synchronize signal for image display and based on the transition instruction signal, where in the deactivated condition at least a portion of said scanning signal line driving section is functionally deactivated; and

control means for switching the output of the display scanning signals to the respective scanning signal lines based on the transition instruction signal so as to cause a transition from successive output of display scanning signals to simultaneous output of display scanning signals, and for controlling the output of the display scanning signals from the scanning signal line driving section to the respective scanning signal lines based on the received transition instruction signal, so that the display scanning signals are outputted simultaneously within one horizontal

Applicant: Y. Kamezaki, et al.
U.S.S.N.: 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 22 of 36

period or two horizontal periods with respect to all of a plurality or more of scanning signal lines of the non-image area until next scanning is started.

43. (Currently Amended) A driving method of a display device which outputs display scanning signals respectively to scanning signal lines, and outputs display data signals respectively to data signal lines, so as to display an image which is in accordance with the display data with respect to pixels which are disposed in a matrix, the display device having a partial display function for a non-image area comprising a plurality or more of scanning signal lines and an image display area, horizontal signal lines in a vertical period of the display device being greater in number than the scanning signal lines, said method comprising the step of:

simultaneously outputting the display scanning signals and the display data signals according to the non-image area with respect to the respective plurality or more of scanning signal lines and the respective data signal lines that correspond to the non-image area; and
~~wherein following said simultaneously outputting, suspending operation of at least a portion of the scanning signal line driving section to decrease power consumption; and~~

wherein the number of horizontal signal lines in a vertical period shall be understood to correspond to the number of scanning signal lines of input video signals.

44. (Currently Amended) A display device driving circuit for a display that is divided into an image display area in which full image display function is allowed and one or more non-

Applicant: Y. Kamczaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 23 of 36

image areas at least one of comprising a plurality or more of scanning signal lines having a partial image display function; said display device driving circuit comprising:

a scanning signal line driving section for outputting display scanning signals respectively to scanning signal lines for displaying an image according to the display data with respect to pixels which are disposed in a matrix;

output control circuitry that is configured and arranged so as to distinguish between the image display area and the one or more non-image areas, where an external transition instruction signal is inputted to the control circuitry so as to identify each of the one or more non-display areas and so as to switch the output of the display scanning signals from the scanning line driving section to the respective plurality or more of scanning signal lines of the one or more non-image areas between one of a successive display scanning signal output mode and a simultaneous display scanning signal output mode responsive to such distinguishing;

wherein the output control circuitry is configured and arranged so the output of the display scanning signals from the scanning line driving section to the respective scanning signal lines is in the simultaneous output mode, responsive to the receipt of the transition instruction signal, and so as to control the output of the display scanning signals from the scanning signal line driving section to the respective scanning signal lines so that the display scanning signals are outputted simultaneously with respect to all of the plurality or more of scanning signal lines; and

wherein the output control circuitry is configured and arranged so the output of the display scanning signals from the scanning line driving section to the respective scanning signal

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 24 of 36

lines is in the successive output mode when the output control circuitry distinguishes the display area and so as to control the output of the display scanning signals from the scanning signal line driving section to the respective scanning signal lines so that the display scanning signals are successively outputted to the respective scanning signal lines for the display area.

45. (Previously Presented) The display device driving circuit of claim 44, wherein the output control circuitry includes an un-scanned area recognizing section that is configured and arranged so as to recognizing that an area that has not been scanned responsive to the external transitional instruction signal, and

wherein the output control circuitry is configured and arranged so the output of the display scanning signals from the scanning line driving section to the respective scanning signal lines is in the simultaneous output mode, responsive to the receipt of the transition instruction signal, and so as to control the output of the display scanning signals from the scanning signal line driving section to the respective scanning signal lines so that the display scanning signals are outputted simultaneously only to the plurality or more of those scanning signal lines which correspond to the unscanned area as recognized by the unscanned area recognizing section.

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 25 of 36

46. (Previously Presented) The display device driving circuit of claim 44, wherein the output control circuitry includes an input section and a scanning area judging section;

wherein the input section is configured and arranged so as to generate a first pulse signal responsive to the received transitional instruction signal;

wherein the judging section is configured and arranged so as to judge an area to be one of the one or more non-image areas when a first pulse signal is received from the input section and to judge the area to be the image display area when there is no first pulse signal.

47. (Previously Presented) The display device driving circuit as set forth in claim 46, wherein said scanning signal line driving section includes a plurality of serially connected shift register sections for outputting second pulse signals therefrom to the judging section; and

wherein the judging section is configured and arranged so as to judge the area to be the image display area when second pulse signals are received and there is no first pulse signal.

48. (Previously Presented) The display device driving circuit as set forth in claim 47, wherein the judging section includes a plurality of logic elements one for each of the plurality of shift register sections and each of the plurality of logic elements are arranged so as to be operably coupled to a respective one of the plurality of shift register sections and to the input section.

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 26 of 36

49. (Previously Presented) The display device driving circuit as set forth in claim 47, wherein said scanning signal line driving section further includes a level shifter and wherein said judging section is operably coupled between the level shifter and each of the shift register sections and the input section.

50. (Previously Presented) The display device driving circuit as set forth in claim 49, wherein the judging section includes a plurality of logic elements one for each of the plurality of shift register sections and each of the plurality of logic elements are arranged so as to be operably coupled to a respective one of the plurality of shift register sections, to the input section and to the level shifter.

51. (Previously Presented) The display device driving circuit as set forth in claim 47, wherein said scanning signal line driving section has a plurality of scanning starting positions which are set in a vertical direction, and successively outputs, among the plurality of scanning starting positions, the display scanning signals to scanning signal lines which correspond to one of the one or more non-image areas, which is an area from a scanning starting position therein in the vicinity of a front portion of the image display area to the image display area, and to scanning signal lines which correspond to the image display area, and thereafter simultaneously outputs the display scanning signals to the plurality or more of scanning signal lines which correspond to an unscanned area based on the transition instruction signal.

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 27 of 36

52. (Previously Presented) The display device driving circuit as set forth in claim 44, wherein said output control circuitry is configured and arranged so as to control the scanning signal line driving section based on the transition instruction signal so that the display scanning signals are simultaneously outputted within one horizontal period to the plurality or more of scanning signal lines of the one or more non-image areas.

53. (Previously Presented) The display device driving circuit as set forth in claim 44, wherein said output control circuitry is configured and arranged so as to control the scanning signal line driving section based on the transition instruction signal so that the display scanning signals are simultaneously outputted within two horizontal periods to the plurality or more of scanning signal lines of the one or more non-image areas.

54. (Currently Amended) An image display device comprising:
a scanning signal line driving section for outputting display scanning signals respectively to scanning signal lines,
a data signal line driving section for outputting display data signals respectively to data signal lines,
a set section for setting an image display area according to the display data and one or more non-image areas with respect to pixels, so as to display an image according to the display

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 28 of 36

data with respect to the pixels which are disposed in a matrix, where at least one of the one or more non-image areas comprises a plurality or more of scanning signal lines,

output control circuitry that is configured and arranged so as to distinguish between the image display area and the one or more non-image areas, where an external transition instruction signal is inputted to the control circuitry so as to identify each of the one or more non-display areas as set in the setting section and so as to switch the output of the display scanning signals from the scanning line driving section to the respective plurality or more of scanning signal lines for any of the one or more non-image areas between one of a successive display scanning signal output mode and a simultaneous display scanning signal output mode responsive to such distinguishing;

wherein the output control circuitry is configured and arranged so the output of the display scanning signals from the scanning line driving section to the respective scanning signal lines is in the simultaneous output mode, responsive to the receipt of the transition instruction signal, and so as to control the output of the display scanning signals from the scanning signal line driving section to the respective scanning signal lines so that the display scanning signals are outputted simultaneously with respect to all of the plurality or more of scanning signal lines; and

wherein the output control circuitry is configured and arranged so the output of the display scanning signals from the scanning line driving section to the respective scanning signal lines is in the successive output mode when the output control circuitry distinguishes the display area and so as to control the output of the display scanning signals from the scanning signal line

Applicant: Y. Kamczaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 29 of 36

driving section to the respective scanning signal lines so that the display scanning signals are successively outputted to the respective scanning signal lines for the display area.

55. (Previously Presented) The display device of claim 54, wherein:
the output control circuitry includes an input section and a scanning area judging section, where the input section is configured and arranged so as to generate a first pulse signal responsive to the received transitional instruction signal;

said scanning signal line driving section includes a plurality of serially connected shift register sections for outputting second pulse signals therefrom to the judging section; and

the judging section is configured and arranged so as to judge an area to be one of the one or more non-image areas when a first pulse signal is received from the input section and to judge the area to be the image display area when there is no first pulse signal and second pulse signals are being received.

56. (Previously Presented) The display device as set forth in claim 55, wherein the judging section includes a plurality of logic elements one for each of the plurality of shift register sections and each of the plurality of logic elements are arranged so as to be operably coupled to a respective one of the plurality of shift register sections and to the input section.

Applicant: Y. Kamezaki, et al.
U.S.S.N. : 09/815,257
RESPONSE TO FINAL OFFICE ACTION
Page 30 of 36

57. (Previously Presented) The display device as set forth in claim 55, wherein said scanning signal line driving section further includes a level shifter and wherein said judging section is operably coupled between the level shifter and each of the shift register sections and the input section.

58. (Previously Presented) The display device driving circuit as set forth in claim 57, wherein the judging section includes a plurality of logic elements one for each of the plurality of shift register sections and each of the plurality of logic elements are arranged so as to be operably coupled to a respective one of the plurality of shift register sections, to the input section and to the level shifter.